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Fertility Recommendations for Hydroseeded Areas

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Bare road banks, construction sites, and eroding mountainsides are commonly called critical areas. One method of establishing vegetation on such areas is through use of a hydroseeder. Hydroseeding involves mixing lime, fertilizer, seed, and mulch, and then mechanically blowing this mixture onto the soil surface. Ease of application and reduction in time and labor are main reasons for its expanded use.

Despite the widespread use of hydroseeding, many users are often disappointed with the results. Poor germination and seedling survivability as well as high maintenance costs are the main concerns. There are ways, however, to minimize these problems.

Recommendations Based on Soil Test Data

- ❑ Submit soil sample(s) and be sure to specify the critical area crop code—061
- ❑ Develop an agronomic fertilizer blend suitable for your area
- ❑ Apply fertilizers that will reduce potential for salt injury
- ❑ Seed at proper time of year for the specific vegetation type
- ❑ Grade just prior to seeding to minimize erosion and other soil problems
- ❑ Consider a maintenance contract
- ❑ Contact your Regional Agronomist for help

Rationale and Justification

N.C.D.A.&C.S. soil tests reveal that critical-area soils tend to have very low phosphorus indexes and medium to high potassium indexes. Of the soils tested, 92 percent required more than 100 lb of P_2O_5 and only 16 percent required more than 60 lb of K_2O per acre. The need for lime on the sampled soils varied but exceeded 1.5 tons per acre in only 11 percent of the soils tested. Piedmont soils may require additional lime due to their higher clay content and aluminum concentrations.

Over several seasons, soil test reports from critical areas in western North Carolina recommended, on average, 1.3 tons lime, 50 lb N, 146 lb P₂O₅, and 52 lb K₂O per acre. Based on these data, the NCDA&CS Agronomic Division developed a standard recommendation that is a blend of 300 lb 18-46-0 and 50 lb 0-0-50. The resulting fertilizer has a grade of 15-39-7. It should be applied at rate of 350 lb/acre and supplies adequate amounts of N, P, K, and S.

Many agencies statewide recommend 100 lb/acre each of nitrogen, phosphate, and potash as well as 2 tons of lime. Comparison of this recommendation with that based on soil test results indicates that standard practice provides excess nitrogen, potash, and lime and too little phosphate. NCDA&CS strongly advises applying fertilizer based on current soil test data.

Application method also has bearing on the amount of fertilizer to apply. Most standard recommendations (even those from soil tests) assume incorporation of amendments into the upper 6–8 inches of soil. No incorporation of seed and plant food occurs with hydroseeding. All seeds are in direct contact with fertilizer and Mother Nature. Poor germination and survivability due to the contact of seed with fertilizer are possible. The use of standard recommendations without incorporation is probably one of the main causes of a poor vegetative stand.

The inability to incorporate fertilizer during hydroseeding limits the total quantity of plant food that can be safely applied. It is also probable that the type of material applied can contribute to seedling loss. Nitrogen in the nitrate form has a much higher salt index than ammoniacal forms. Muriate of potash has twice as much salt potential as sulfate of potash.

Due to the fragile condition of critical areas coupled with the harshness of nature, erosion control professionals should consider the form of plant food applied as well as the quantity. Nitrate forms of nitrogen should be avoided when possible. Rates of both nitrogen and potash should be selected with optimum establishment of vegetation in mind rather than optimum grass production or yield. Soil tests can be used to identify minimum plant nutrient requirements and low-salt-producing fertilizers to increase the chances of establishing an adequate stand of vegetation.

NCDA&CS provides recommendations specific for critical areas where lime and fertilizer cannot be incorporated. These recommendations are generated whenever the critical area crop code 061 is specified on a soil sample information sheet. A typical recommendation is 40–60 lb N, up to 150 lb P₂O₅, and up to 50 lb K₂O along with enough limestone to achieve a pH of 6.0. These rates should promote adequate initial cover and minimize salt injury and problems associated with overliming.

The NCDA&CS Agronomic Division stands ready to assist N.C. residents by providing meaningful nutrient management information for all kinds of crops. For help in learning how to take and submit samples or to interpret report recommendations, visit the Division's Web site (www.ncagr.com/agronomi/) or contact your local NCDA&CS regional agronomist.